REMARKS

Claims 1 and 3-48 were examined by the Office, and in the Office Action of September 9, 2007 all claims are rejected. With this response claims 1, 8, 19, 22-27, 31-32, 38-39, 41 and 44-45 are amended. Support for the amendments can be found at least from page 11, lines 20-21 of the specification as originally filed. Applicant respectfully requests reconsideration and withdrawal of the rejections in view of the following remarks.

Claim Rejections Under § 112

In section 3, on page 2 of the Office Action, claims 27-31, 40 and 47 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite, because there is insufficient antecedent basis for the limitations "the audio signal" and "the characteristics of audio signal" recited in the claims. Applicant respectfully submits that claims 27 and 31 are amended in a manner that clarifies the audio signal limitation. In particular, the limitation "characteristics of audio signal" is removed from the claims, and the claims now recite "an input audio signal having audio characteristics." Therefore, applicant respectfully submits that claims 27 and 31, and the claims depending therefrom are definite, and respectfully requests withdrawal of the rejection to claims 27-31, 40 and 47.

In section 4, on page 2 of the Office Action, claims 27-31, 40 and 47 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for omitting essential structural cooperative relationships of elements. Claims 27 and 31 are amended to clarify the relationship between the decoder and the input. Claims 27 and 31 recite that the input module is for receiving audio data, and that the decoder is responsive to the audio data for generating a synthesized audio signal based on the adjusted representation. Therefore, applicant respectfully submits that claims 27 and 31 as amended are definite since the cooperation between the input module and decoder is clearly recited in claims 27 and 31. Accordingly, applicant respectfully requests withdrawal of the rejections to claims 27 and 31, and the claims depending therefrom.

Claim Rejections Under § 101

In section 6, on page 3 of the Office Action, claim 26 is rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Claim 26 is amended to recite a computer readable medium having an embedded software product. Therefore, applicant respectfully

submits that claim 26 as amended is directed to statutory subject matter, because claim 26 properly recites the limitations for a software claim.

Claim Rejections Under § 102

In section 7, on page 4 of the Office Action, claims 1, 3-14, 19-21, 26-37, 39-44 and 46-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Gersho et al. (U.S. Patent No. 6,311,154). Applicant respectfully submits that claim 1 is not disclosed or suggested by Gersho, because Gersho at least fails to disclose or suggest segmenting an audio signal into a plurality of segments based on the audio characteristics of the audio signal, and a parametric-type encoding method, as recited in claim 1. On pages 13 and 14 of the Office Action, the Office states that the parametric-type encoding recited in claim 1 is not given patentable weight, because it is only recited in the preamble of claim 1. Therefore, claim 1 is amended to recite that the audio characteristics are indicative of parameters in a parametric representation of the audio signal in the body of the claim. Accordingly, applicant respectfully submits that the limitation regarding parameters in a parametric representation of the audio signal are not disclosed or suggested by Gersho, because Gersho is only concerned with a CELP-type encoding method. For at least this reason, claim 1 is not disclosed or suggested by Gersho.

Furthermore, Gersho also does not disclose or suggest segmenting an audio signal into a plurality of segments based on the audio characteristics of the audio signal. In contrast to claim 1, Gersho discloses that the speech waveform is partitioned into a sequence of successive frames, each frame has a fixed length, and each frame is then partitioned into a number of equal length subframes. See Gersho column 1, lines 55-58; see also column 7, lines 23-26 (each basic frame is partitioned into M equal length subframes). Gersho cannot disclose segmenting based on the audio characteristics as recited in claim 1, because the speech waveform is partitioned into fixed length frames regardless of the audio characteristics. The method for coding a speech signal disclosed by Gersho includes first partitioning samples of a speech signal into frames, and then classifying the speech signal in each of the frames into one of a plurality of classes. See Gersho column 4, lines 25-27. The method discussed in Gersho cannot classify speech samples before partitioning, because the frames that are classified into a class, i.e. the frames must first exist before they can be classified. Therefore, the characteristics of the speech signal are not determined until after the speech signal has been partitioned into frames.

In contrast to claim 1, Gersho determines where to set the boundary of each frame when partitioning the samples without any regard for the audio characteristics of the speech signal in the frames. Since frames are not classified until after partitioning, and it is impossible to partition the speech signal based on classes before classifying the speech signal, Gersho cannot disclose or suggest segmenting the audio signal into segments based on the audio characteristics of the audio signal, as recited in claim 1. In contrast, claim 1 recites that audio signals are segmented based on the audio characteristics in the audio signals. In claims 1 the segmenting depends on the audio characteristics of the audio signal. Because the audio characteristics of the audio signal may vary from sample to sample, the boundary of the segments is not pre-determined. As a result, a segment can be long or short; it can be 10 frames or 28 frames (see e.g. Figure 3). In Gersho, the length of each partitioned "segment" is the same. See Gersho column 7, lines 23-26.

Furthermore, contrary to the assertions of the Office, partitioning the speech into frames and sub-frames, and enhancing performance by coding the important segments of the excitation more accurately is not the equivalent of segmenting based on audio characteristics, as recited in claim 1. Gersho only discloses that the frames of the speech signal is encoded based on classes, which are based on the nature and amount of information contained in the frames. See Gersho column 3, lines 57-61. In order to enhance the coding efficiency, Gersho discusses coding the excitation signal in windows depending on the classification of the speech frames. Gersho also discloses dividing a fixed frame into a number of subframes for the purpose of locating the active periods (i.e., windows) of the excitation signal in the subframes. However, Gersho does not disclose or suggest segmenting each fixed frame into a plurality of subframes based on the audio characteristics of the audio signal in the fixed frame. Instead, Gersho only discloses coding the excitation in the subframes depending on the audio characteristics of the fixed frame, and then classifying the speech signal in each of the fixed frames into different classes using two classifiers. See Gersho column 4, lines 51-55. Classification is only carried out by a classifier after the speech is partitioned into frames and subframes. After classification, frames belonging to a category are coded by a coding method that represents the excitation in those categories.

Therefore, Gersho does not disclose or suggest segmenting the audio signal into a plurality of segments based on the audio characteristics of the audio signal. For at least this reason, Gersho fails to disclose or suggest all of the limitations recited in claim 1.

Independent claims 19, 27 and 31-32 contain limitations similar to those recited in claim 1. Therefore, for at least the reasons discussed above in relation to claim 1, claims 19, 27 and 31-32 are not disclosed or suggested by Gersho.

The claims depending from the above mentioned independent claims are also not disclosed or suggested by Gersho at least in view of their dependencies.

In section 9, on page 12 of the Office Action, claims 15-18, 22-25, 38 and 45 are rejected under 35 U.S.C. § 102(e) as anticipated by Sinha et al. (U.S. Patent No. 7,191,136). Applicant respectfully submits that claim 22 is not disclosed or suggested by Sinha, because Sinha fails to disclose or suggest segmenting an audio signal into a plurality of segments based on the characteristics of the audio signal, as recited in claim 22.

In contrast to claim 22, Sinha only discloses that the compressed information consists of coded low frequency components as well as parametric representations for the high frequency components from the high pass filter. See Sinha column 4, lines 44-49. However, Sinha does not disclose or suggest that the compressed information has been segmented at all, let alone disclose or suggest that the compressed information has been segmented based on the characteristics of the compressed information. Instead, Sinha only discloses that the compressed information includes parametric representations of the high frequency components, but does not mention that the high frequency components are segmented based on the parameters. For at least this reason claim 22 is not disclosed or suggested by Sinha.

The dependent claims rejected above are also not disclosed or suggested by Sinha at least in view of their dependencies. Since Sinha at least fails to disclose or suggest segmenting audio signals based on the characteristics of the audio signal, which is recited in the independent claims from which the dependent claims rejected above depend..

Conclusion

For at least the reasons discussed above, the present application is believed to be in condition for allowance, and such action is earnestly solicited. The undersigned hereby authorizes the Commissioner to charge Deposit Account No. 23-0442 for any fee deficiency required to submit this response.

Respectfully submitted,

Date: 3 December 2007

s/Keith R. Obert/
Keith R. Obert
Attorney for the Applicant
Registration No. 58,051

WARE, FRESSOLA, VAN DER SLUYS
& ADOLPHSON LLP
Bradford Green, Building Five
755 Main Street, P.O. Box 224
Monroe, CT 06468
Telephone: (203) 261-1234
Facsimile: (203) 261-5676
USPTO Customer No. 004955